

Shade Management in Tea Plantations

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Since tea is assumed to be a shade loving plant, the planting of shade trees has been associated with tea cultivation from its inception. Shade removal in mid 60's had lead to series of disastrous consequences which were more pronounced in mid and low elevations, therefore shade was re-introduced in 1970s.

The role played by shade in tea plantations are (a) Provision of physical shade and its effect on photosynthesis and productivity (b) Improvement and sustenance of soil fertility and (c) Its influence on the management of pests and diseases

The leaf temperature of the foliage is maintained several degrees below the ambient temperature due to the presence of shade particularly in mid and low elevations. Shade not only helps in maintaining uninterrupted photosynthetic process but also prevent damage to leaf due to excessive heating up of the leaf.

Fertility status of the soil is governed by the organic matter content in soil. Shade trees provide organic matter not only through leaf litter from natural defoliation but also through loppings of shade trees. Large amounts of green matter or bio mass that contribute by shade trees gets converted to humus through microbial degradation which is essential to maintain the organic matter status and sustain soil fertility.

If there is no supply of green matter, tea soils become denuded of this life giving organic matter and convert soils to a barren non living medium. Unfortunately, some of our tea soils in the low and mid elevations have already approached this dangerous status with poor nutrient and moisture retention capacity and consequently being very vulnerable to droughts.

Besides regulating ambient temperature, improving soil fertility through enhanced microbial & earthworm activity, shade trees have other ecological influences on incidence of tea pests and diseases. Accordingly, outbreaks of diseases such as Blister blight is enhanced under high humid conditions. Therefore, in locations where tea is prone to this disease it is necessary to regulate the shade. High humidity helps to control pests such as mites and thrips as natural biological control mechanism of these pests activated only under humid conditions. Shade *Gliricidia* helps to reduce the low country live wood termite pest in tea as it act as a diversionary host as well as a trap crop of this pest.